

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

**INSTRUCTIONS FOR INSTALLING INSTALLATION KIT MK-1412/VRC-24
INSTALLED IN TRUCK, 3/4 TON 4X4, M37, OR M37B1
(FOR RADIO SETS AN/VRC-24, OR AN/VRC-24A ALONE, OR FOR
RETRANSMISSION WITH RADIO SETS AN/GRC-3 THROUGH -8)**

Headquarters, Department of the Army, Washington, D.C.

12 July 1972

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**CHAPTER 1
INTRODUCTION**

1-1. Scope

This manual provides instructions for the installation of Electronic Equipment Installation Kit MK-1412/VRC-24 FSN 5820-401-9647, in Truck, 3/4 Ton 4X4, M37, or M37B1. This permits mounting Radio Sets AN/VRC-24 or AN/VRC-24A alone, and also includes provisions for mounting one of the author-

ized Radio Sets AN/GRC-3 through -8, for retransmission.

NOTE

Refer to SB 11-131 for a complete listing of authorized installations in vehicular radio sets.

1-2. Destruction of Army Material to Prevent Enemy Use

Refer to TM 740-244-2 for instructions in the destruction of equipment to prevent enemy use.

1-3. Maintenance Forms and Records, and Reporting of Errors

a. *Maintenance Forms and Records.* Department of the Army forms and records used for equipment

maintenance will be those prescribed by TM 38-750.

b. *Reporting of Errors.* Report of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commanding General, US Army Electronics Command, ATTN: AMSEL-MA-CR, Fort Monmouth, N.J. 07703.

CHAPTER 2

INSTALLATION

Section I. SERVICE UPON RECEIPT OF MK-1412/VRC-24

2-1. Unpacking and Checking MK-1412/VRC-24 Items

a. Move the packing boxes close to the location where the installation is to take place and unpack the parts of the MK-1412/VRC-24. Be careful not to lose any of the parts.

b. Inspect the items for damage incurred during shipment. If any of the items have been damaged, report the damage on DD Form 6 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700-58.

c. Check the equipment against the listing in paragraph 2-2 and the packing slip to see if the shipment is complete. The equipment should be placed in service even though a minor assembly or part that does not affect proper installation is missing.

d. When wheeled vehicles with radio sets are to be turned in or transferred, the radio sets and the installation kit will be removed and reinstalled in the new replacement vehicle. Refer to SB 11-131 if the radio set is to be installed in another type of vehicle. It should be noted that both the basic radio set and the MK-1412/VRC-24 are separate accountable items and are *not* considered part of the vehicle.

2-2. Items Comprising Electronic Equipment Installation Kit MK-1412/VRC-24

The items which comprise MK-1412/VRC-24 are listed in table 2-1. A Federal Stock Number (FSN) has been provided for each item. Tables 2-2 through 2-4 list the items in the hardware, mounting, and clamp, strap kits.

Table 2-1. Items Comprising an Electronic Equipment Installation Kit MK-1412/VRC-24

FSN	Item	Quantity	Length	Remarks
5820-752-5332	Hardware Kit for Radio Set AN/VRC-24 or AN/VRC-24A alone or for retransmission with Radio Sets AN/GRC-3 through -8 in Truck, $\frac{3}{4}$ ton, 4x4, M37, or M37B1 (table 2-2).	1		
5995-577-8414	Cable Assembly, Power, Electrical CX-4629/U.	1	8 ft	SM-D-345250
5995-826-5583	Cable Assembly, Radio Frequency CG-1650A/U.	1	20 ft	
5995-682-3405	Cable Assembly, Special Purpose, Electrical CX-4884/U.	1	3 ft	SM-D-345254
5995-889-1104	Cable Assembly, Power, Electrical CX-4629/U.	1	11 ft	SM-D-345250
5995-886-9569	Cable Assembly, Special Purpose, Branched, CX-4498/U.	1	9 ft	SC-D-75775
9535-201-2755	Adapter Connector UG-567A/U.	1		
5820-889-3309	Hardware Kit, Mounting (table 2-3).	1		
5820-783-9033	Bracket, Assembly.	1		SC-D-75694
5820-679-3434	Mounting MT-1436/U.	1		SC-DL-344948
5820-355-8626	Bracket; Seat.	1		SC-C-28632
5820-752-5738	Clamp, Strap Kit (table 2-4).	3		
5995-889-0948	Ground Strap.	1		SC-B-75180
5821-698-5187	Plate.	1		SC-B-75685
5940-636-5761	Terminal, Electrical, Lug Nr. 316 as manufactured by H. D. Sherman Co., Battle Creek, Mich., or equal.	2		
5965-237-8049	Headset-Microphone H-38/U.	1		
5965-329-9085	Chestset Group AN/GSA-6A.	1		

Table 2-2. Hardware Kit (FSN 5820-752-5332)

Item	Quantity	Remarks
Grommet, #2035 as supplied by Atlantic India Rubber Works, Chicago, Ill, or equal	1	Commercial
Grommet, #2277, as supplied by Atlantic India Rubber Works, Chicago, Ill, or equal	1	Commercial
Grommet, AN 931A7-11	1	MIL-G-3036
Steel hex nut, 5/16-24	2	MS 35690-522
Steel hex nut, 1/4-28	24	MS 35690-422
Steel hex nut, 1/4-20	4	MS 35690-402
Steel wing nut, 1/4-20	4	MS 34525-14
Steel hex hd capscrew, 5/16-24 × 3/4	3	MS 35292-32
Steel hex hd capscrew, 1/4-28 × 2	8	MS 35292-14
Steel hex hd capscrew, 1/4-28 × 1 1/4	8	MS 35292-10
Steel hex hd capscrew, 1/4-28 × 7/8	1	MS 35292-7
Steel hex hd capscrew, 1/4-28 × 1/2	6	MS 35292-3
Steel hex hd capscrew, 1/4-20 × 3/4	4	MS 35291-6
Steel rd hd screw, 1/4-20 × 7/8	4	MS 35225-82
Steel rd hd sheet metal screw, #10 × 5/8	1	FF-S-107
Steel rd hd sheet metal screw, #10 × 1/2	12	FF-S-107
Steel carriage bolt, 5/16-18 × 1 1/2 w/nut	3	MS 35751
Steel lockwasher 5/16 internal-external teeth, Shakeproof Inc., No. 4018-24-00 or equal	4	Commercial
Steel lockwasher 1/4 internal-external teeth, Shakeproof Inc., No. 4014-24-00 or equal	42	Commercial
Steel lockwasher, 1/4 internal-external teeth, Shakeproof Inc., No. 4014-28-00 or equal	14	Commercial
Steel lockwasher, No. 10 internal-external teeth, Shakeproof Inc., No. 4010-18-00 or equal	14	Commercial

Table 2-3. Mounting Hardware Kit (FSN 5820-889-3309)

Item	Quantity	Remarks
Lockwasher, 1/4; internal and external tooth	18	MS45904-68
Nut, plain hexagon; 1/4-28 unf; cap pl type II, Class C, Per QQ-P-416	8	MS35690-425
Hex head capscrew; 1/4 × 1 1/4-28 unf; cad pl type II, Class C, Per QQ-P-416	8	MS35298-10
Hex head capscrew; 1/4 × 2 1/4-28 unf; cad pl, type II Class C, Per QQ-P-416	8	MS35298-15

Table 2-4. Clamp, Strap Kit (FSN 5820-752-5738)

Item	Quantity	Remarks
Clamp, strap	3 ft	SC-B-35513
Nut, plain, hexagon; carbon steel, cad pl; 1/4-28 UNF-2B; 7/32 nom thk	12	MS 35690-422
Washer, lock, flat; heavy; int teeth; .045 max thk; 1/4 nom size	12	MS 35334-19
Clamp strap fastener assy	12	SC-C-279924 (Group I)

Section II. INSTALLATION OF MK-1412/VRC-24

2-3. Tools Required for Installation

The tools required for installation of MK-1412/VRC-24 are contained in Tool Kit, Electronic Equipment TK-100/C, FSN 5180-605-0079. The following additional items are needed:

- a. One $\frac{3}{8}$ -inch twist drill FSN 5133-277-9666.
- b. One $\frac{3}{8}$ -inch portable electric drill FSN 5130-293-3456.

2-4. Installation Instructions

If Radio Set AN/VRC-24 or AN/VRC-24A is installed for retransmission with another radio set,

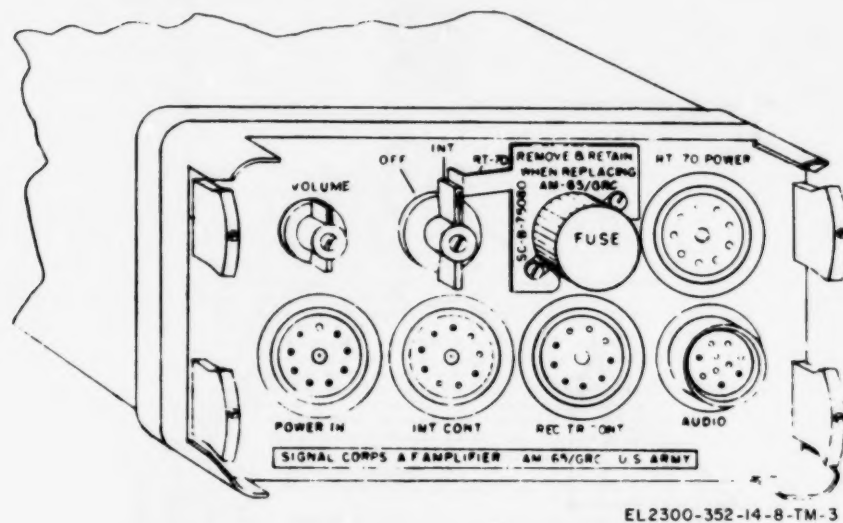
Generator Kit FSN 2920-562-0414 is required and should be requisitioned from the Mobility Command.

a. To accomplish the installation follow the instructions shown on figures 2-1, 2-2, and 2-3.

b. The following additional information is provided:

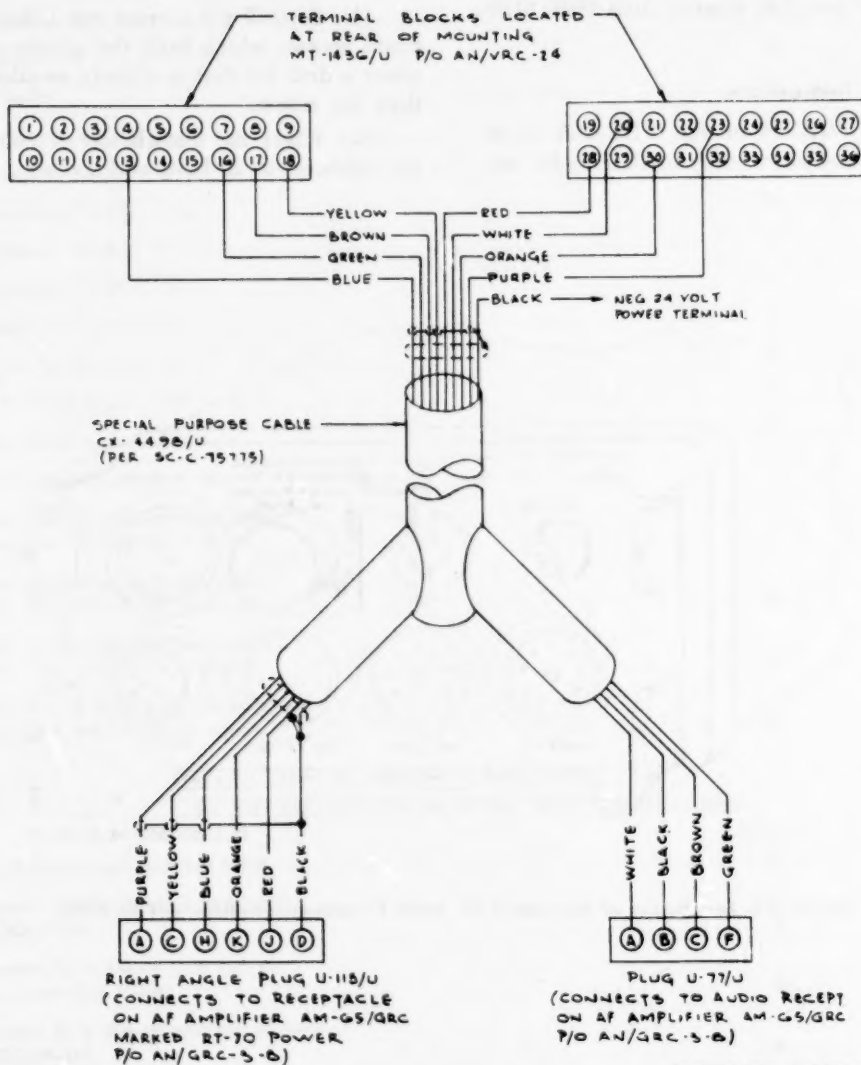
(1) To drill the correct size holes for the sheet metal screws which hold the plastic cable clamps, select a drill bit that is slightly *smaller* in diameter than the screw.

(2) When the installation is completed, check the tightness of all bolts and screws.



EL2300-352-14-8-TM-3

Figure 2-1. Installation of stop switch on Audio Frequency Amplifier AM-65/GRC.



EL2300-352-14-8-TM-2

Figure 2-2. Wiring diagram for connecting retransmission cable (used with Radio Sets AN/VRC-24, AN/VRC-24A, and AN/GRC-3 through -8)

Item No.	Name of Items	Qty reqd	Remarks
1	Receiver-Transmitter RT-323/VRC/24 or Receiver-Transmitter RT-323A/VRC-24	1	
3	Mounting MT-1436/U	1	
3	Antenna AT-803/VR	1	
4	Radio Frequency Cable Assembly CG-1650/U (20 ft)	1	
5	Adapter, Angle UG-27C/U	1	
6	Adapter, Angle UG-567A/U	1	
7	Cable Assembly, Special Purpose CX-4498/U (9 ft)	1	
8	Cable Assembly, Power Electrical, CX-4629/U (11 ft)	1	
9	Bracket, assembly	1	SC-D-75684
10	Bracket, Seat	1	SC-C-28632
11	Clamp, Strap Kit	3	SC-B-35513 Note 3
12	Grommet #2035	1	Note 7
13	Grommet #2277	1	Note 7
14	Grommet	1	MS25490-13
15	Ground strap	1	SC-B-75180 GR IV
16	Plate	1	SC-B-75685
17	Terminal, electrical	2	Note 10
18	Hex hd capscrew, 5/16-24 x 3/4 lg	3	
19	Hex hd capscrew, 1/4-28 x 2 lg	8	
20	Hex hd capscrew, 1/4-28 x 1 1/4 lg	8	
21	Hex hd capscrew, 1/4-28 x 1/2 lg	1	
22	Hex hd capscrew, 1/4-28 x 1/2 lg	6	
23	Hex hd capscrew, 1/4-20 x 3/4 lg	4	
24	Rd hd machine screw, 1/4-20 x 1/2 lg	4	
25	Rd hd sheet metal screw, #10 x 5/8 Note 8	1	PK64A10-10
26	Rd hd sheet metal screw #10 x 1/2 Note 8	12	PK64A10-8
27	Carriage bolt, 5/16-18 x 1 1/2 w/nut	3	
28	Hex nut, 5/16-24	2	
29	Hex nut, 1/4-28	24	
30	Hex nut, 1/4-20	4	
31	Wing nut, 1/4-20	4	
32	Lockwasher, 5/16 IET, #4018-24-00	4	Note 2
33	Lockwasher, 1/4 IET, #4014-24-00	42	Note 2
34	Lockwasher, #10 IET, #4010-18-00	14	Note 2
35	Lockwasher, 1/4 IET, #4014-28-00	14	Note 2
26	Special Purpose Cable Assembly CX-4723/U ()	1	Note 5

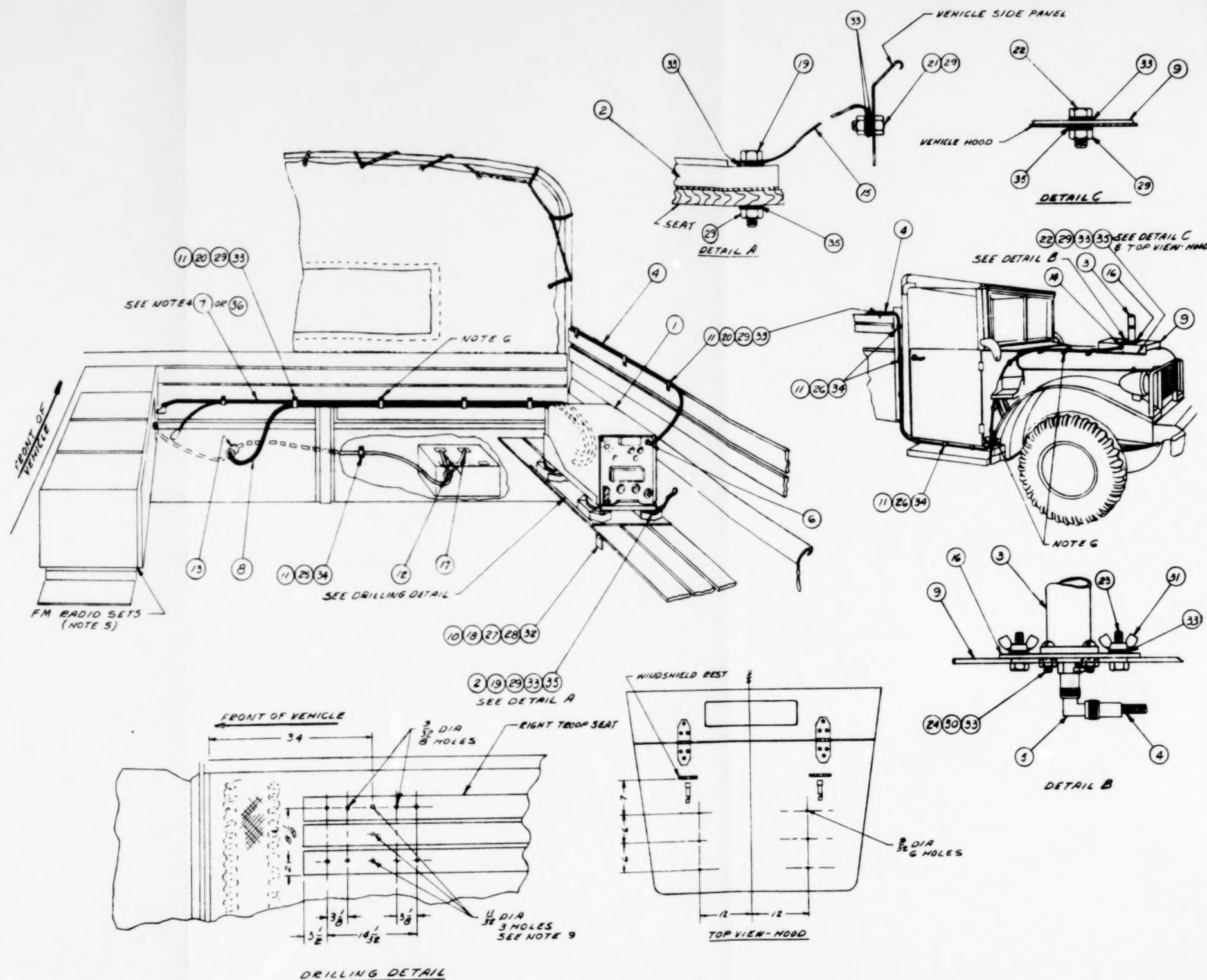


Figure 2-3. Installation of Installation Kit MK-1412/VRC-24 in Truck, 1/4-ton 4x4, M37 or M37B1.

NOTES:

1. UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
2. STEEL, CADMIUM PLATED AS SUPPLIED BY SHAKE-PROOF INC., ELGIN, ILL., OR EQUAL.
3. CLAMP STRAP KIT CONTAINS A 3 FOOT ROLL OF PERFORATED PLASTIC STRAP ALONG WITH APPROPRIATE HARDWARE. CUT STRAP MATERIAL INTO REQUIRED LENGTHS FOR CABLE CLAMPING.
4. A- ⑦ USED ONLY WHEN IN RETRANSMISSION WITH RADIO SET AN/GRC-3 THRU 8.
B- ⑩ USED ONLY WHEN IN RETRANSMISSION WITH FM RADIO SET.
5. A- WHEN RADIO SET AN/GRC-3 THRU 8 IS USED FOR RETRANSMISSION, INSTALL PER INSTALLATION INSTRUCTIONS FSN 7610-092-8826.
B- WHEN RADIO SET AN/VRC-12 SERIES IS USED FOR RETRANSMISSION INSTALL PER INSTALLATION INSTRUCTIONS FSN 7610-833-7890.
6. LOCATE CLAMPS IN APPROXIMATE POSITION AS SHOWN.
7. SUPPLIED BY ATLANTIC INDIA RUBBER WORKS INC., CHICAGO, ILL., OR EQUAL.
8. SUPPLIED BY PARKER-KALON CORP., NEW YORK, N.Y., OR EQUAL.
9. USE SEAT BRACKET PER SC-C-28632 AS TEMPLATE FOR DRILLING SEAT AND BOTTOM HOLES IN FENDER WELL.
10. ⑪ LIGHT WEIGHT AUTOMOTIVE LOCK NO 316 AS SUPPLIED BY H. B. SHERMAN MFG CO., BATTLE CREEK, MICH. OR EQUAL.

EL2300-352-14-B-TM-1

APPENDIX A
REFERENCES

AR 700-58	Report of Packaging and Handling Deficiencies.
DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 310-7	U.S. Army Equipment Index of Modification Work Orders.
SB 11-131	Vehicular Radio Sets and Authorized Installations.
SB 11-573	Painting and Preservation Supplies Available for Field Use for Electronics Command Equipment.
SB 38-100	Preservation, Packaging, Packing and Marking Materials, Supplies, and Equipment used by the Army.
SC 5180 91-CL-S21	Tool Kit, Electronic Equipment TK-100/G.
TB-746-10	Field Instructions for Painting and Preserving Electronics Command Equipment.
TB SIG 291	Safety Measures to be Observed When Installing and Using Whip Antennas, Field Type Masts, Towers, Antennas, and Metal Poles that are Used With Communication, Radar, and Direction Finder Equipment.
TM 11-284	Radio Sets AN/GRC-3, -4, -5, -6, -7, and -8.
TM 11-5820-222-10	Operator's Manual: Radio Sets AN/VRC-24, AN/VRC-24A, AN/TRC-68, and AN/TRC-68A.
TM 11-5820-222-20	Organizational Maintenance Manual: Radio Sets AN/VRC-24, AN/VRC-24A, AN/TRC-68, and AN/TRC-68A.
TM 11-5820-222-35	DS, GS, and Depot Maintenance Manual: Radio Sets AN/VRC-24, AN/VRC-24A, AN/TRC-68, and AN/TRC-68A.
TM 38-750	The Army Maintenance Management System (TAMMS).
TM 750-244-2	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command).

By Order of the Secretary of the Army:

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The Adjutant General.

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